

FIG 1A

AAV-1	ttgcccaactccctctgcgcgctcgctcgctcggtgggcctgcggacc	aaagggtccgc	60	
AAV-2	....g.....	ac..a...g.gc.....	gc.
AAV-6	....g.....	ac..a...g.gc.....	gc.
		Rep binding site		
AAV-1	agacggcagagctctgctctgccggccccc	caccgagcagcgcgcgcagagaggagtg	120	
AAV-2	c....c.c.g...t...c.g.g.....	t..gt.....	120	
AAV-6	c....c.c.g...t...c.g.g.....	t..gt.....	120	
		TRS		
AAV-1	ggcaactccatcactagggtaa	TCGCGAAGCGCCTCCCACGCTGCCGCGTCAGCGCTGA	180	
AAV-2	..c.....	---.ct.G..G-----	TG.A...G-----	
AAV-6	..c.....	---.ct.G..G-----	TG.A...G-----	
		E box/USF		
AAV-1	CGTAAATTACGTCAAGGG---	GAGTGGTCCTGTATTAGCT	GTCACGTGAGTGCTTTGC	237
AAV-2	...G.....	TTA.G.A.....	AG.....	222
AAV-6	...G.....	TTA.G.A.....	AG.....	222
		YY1		
AAV-1	<u>GACATTTGCGACACCACGTGGCCATTAGGGTATATAT</u>	GGCCGAGTGAGCGAGCAGGAT	297	
AAV-2	.....T....T..CGCT.....	T..A.C.....AC.....G.	282
AAV-6	.....T....T..CGCT.....	T..A.C.....AC.....G.	282
		P5/TATA		
AAV-1	<u>CTCCATTGAC-CGCGAAATTGAAACGAGCAGCAGCCATGCCGGGCTT</u>	CTACGAGATCG	356	
AAV-2	.....AG..G..GG.....	C.....C.....G..T.....T.	342
AAV-6	.....AG..G..GG.....	C.....-.....G..T.....T.	341
		YY1/p5 RNA		
AAV-1	TGATCAAGGTGCCGAGCGACCTGGACGAGCACCTGCCGGCATTCTGACTCGTTGTGA	416		
AAV-2	....T....C..C.....T....G....T....C.....AGC.....	402	
AAV-6	....T....C..C.....T....T....C.....AGC.....	401	
		Rep 78/68		
AAV-1	GCTGGGTGGCCGAGAAGGAATGGGAGCTGCCCGGATTCTGACATGGATCTGAATCTGA	476		
AAV-2	A.....T....G..A.....	.....T....G..A.....	462
AAV-6	A.....T....C..C.....T....T....C.....AGC.....	461		
		AAV-1		
AAV-1	TTGAGCAGGCACCCCTGACCGTGGCCGAGAAGCTGCAGCGCAGTCCCTGGTCCAATGGC	536		
AAV-2	.....T.....	.....T...ACGG.....G.....	522
AAV-6	.....T.....	.....T...ACGG.....G.....	521
		AAV-1		
AAV-1	GCCCGGTGAGTAAGGCCCGGAGGCCCTCTTGTTCAGTTGAGAAGGGCGAGTCCT	596		
AAV-2	....T.....	.....T....G..A..T.....A..AG..	582
AAV-6	.....T.....	.....T....G..A..T.....A..AG..	581
		AAV-1		
AAV-1	ACTTCCACCTCCATATTCTGGTGGAGACCAACGGGGTCAAATCCATGGTGCCTGGCCGCT	656		
AAV-2	.....A.G..CG.G..C.....A.....C.....G.....TT....A..T.	642	
AAV-6	.....	.....TT....A..T.	641
		AAV-1		
AAV-1	TCCTGAGTCAGATTAGGGACAAGCTGGCAGACCATCTACCGCGGGATCGAGCCGACCC	716		
AAV-2	.....C.C..A..A..A.T....GA..T.....	.....TT	702
AAV-6	.....	.....TT	701
		AAV-1		
AAV-1	TGCCCAACTGGTTCGGGTGACCAAGACGCGTAATGGCGCCGGAGGGGGAAACAAGGTGG	776		
AAV-2	....A.....C..A.....CA.A.....	.....C	762
AAV-6	.....	.....C	761

FIG 1B

AAV-1	TGGACGAGTGCTACATCCCCAACTACCTCCTGCCCAAGACTCAGCCCGAGCTGCAGTGGG	836
AAV-2	.....T.....T.....T.....C.....A.....C.....T.....C.....	822
AAV-6	.....	821
		P19/TATA
AAV-1	CGTGGACTAACATGGAGGAGTATATAAGCGCCTGTTGAACCTGGCGAGCGCAAACGGC	896
AAV-2	.....T.....AC.....T.....C.....G.....T.....CA.....G.....T.....	882
AAV-6	.....C.....GG.....A.....G.....A.....A.....C.....GG.....C.....	881
		P19 RNA
AAV-1	TCGTGGCGCAGCACCTGACCCACGTCAAGCCAGACCCAGGAGCAGAACAGGAGAATCTGA	956
AAV-2	.....G.....T.....G.....GTCG.....G.....A.....A.....	942
AAV-6	.....CG.....	941
		Rep 52/40
AAV-1	ACCCCAATTCTGACGCGCCTGTCATCCGGTCAAAACCTCCGCGCGCTACATGGAGCTGG	1016
AAV-2	.....T.....G.....G.....A.....A.....T.....A.....CA.....G.....	1002
AAV-6	.....	1001
AAV-1	TCGGGTGGCTGGTGGACCGGGGCATCACCTCCGAGAACAGTGGATCCAGGAGGACCAGG	1076
AAV-2	.....C.....AA.....G.....T.....G.....	1062
AAV-6	.....	1061
AAV-1	CCTCGTACATCTCCTCAACGCCGCTTCAACTCGCGTCCCAGATCAAGGCCGCTCTGG	1136
AAV-2	.....A.....T.....G.....C.....A.....T.....CT.....	1122
AAV-6	.....	1121
AAV-1	ACAATGCCGGCAAGATCATGGCGCTGACCAAATCCGCGCCGACTACCTGGTAGGCCCG	1196
AAV-2	.....G.....A.....T.....AGC.....T.....A.....C.....G.....AGC	1182
AAV-6	.....	1181
AAV-1	CTCCGCCCGGGACATTAACCAACCGCATCTACCGCATCCTGGAGCTGAACGGCTACG	1256
AAV-2	AG.....CGTG.....A.....TCC.....G.....T.....TAAA.....TT.....A.....A.....G.....	1242
AAV-6	.....C.....T.....	1241
AAV-1	AACCTGCCTACGCCGGCTCCGTCTTCTCGCGTGGGCCAGAAAAGGTTGGGAAGCGCA	1316
AAV-2	.....T.....CAA.....T.....G.....CT.....G.....A.....AC.....A.....C.....A.....G.....	1302
AAV-6	.....C.....	1301
AAV-1	ACACCATCTGGCTGTTGGGCCGCCACACGGCAAGACCAACATCGCGGAAGCCATCG	1376
AAV-2	.....T.....A.....T.....C.....G.....G.....A.....	1362
AAV-6	.....	1361
AAV-1	CCCACGCCGTGCCCTCTACGGCTGCGTCAACTGGACCAATGAGAACTTCCCTCAATG	1436
AAV-2	.....A.....T.....G.....A.....	1422
AAV-6	.....	1421
AAV-1	ATTGCGTCGACAAGATGGTATCTGGTGGAGGAGGGCAAGATGACGGCCAAGGTCGTGG	1496
AAV-2	.....C.....T.....G.....C.....	1482
AAV-6	.....	1481
AAV-1	AGTCCGCCAAGGCCATTCTCGCGGGCAGCAAGGTGCGCGTGGACCAAAAGTGCAAGTCGT	1556
AAV-2	.....G.....A.....A.....A.....G.....A.....C.....	1542
AAV-6	.....	1541
AAV-1	CCGCCAGATCGACCCCAACCCCGTGATCGTCACCTCAACACCAACATGTGCCCGTGA	1616
AAV-2	.....G.....A.....G.....T.....	1602
AAV-6	.....T.....	1601

FIG 1C

AAV-1 TTGACGGAACAGCACCACCTCGAGCACCAGCAGCCGTTGCAGGACCGGATGTTCAAAT 1676
 AAV-2 TCA.. G..... A..... A..... A..... 1662
 AAV-6 1661

AAV-1 TTGAACTCACCCGCCGTCTGGAGCATGACTTGGCAAGGTGACAAAGCAGGAAGTCAAAG 1740
 AAV-2 T..... G..... C.. C..... 1722
 AAV-6 1721

AAV-1 AGTTCTCCGCTGGCGCAGGATCACGTGACCGAGGTGGCGCATGAGTTCTACGTCAAGAA 1796
 AAV-2 .C.. T..... G..... AA..... GTT..... A..... A..... A..... 1782
 AAV-6 1781

P40/TATA

AAV-1 AGGGTGGAGCCAACAAAAGACCCGCCCGATGACGCGGATAAAAGCGAGGCCAAGCGGG 1856
 AAV-2 G..... AG..... A.... T... T..... A.... A..... 1842
 AAV-6 G..... 1841

P40 RNA

AAV-1 CCTGCCCTCAGTCGCGGATCCATCGACGTACAGCGGAAAGGAGCTCCGGTGGACTTTG 1916
 AAV-2 TGC.. GAG..... T... C.G..... ---.. T.. A.CA... AC. 1899
 AAV-6 1901

▼

AAV-1 CCGACAGGTACCAAAACAAATGTTCTCGTCACGCGGGCATGCTCAGATGCTGTTCCCT 1976
 AAV-2 .A..... T..... AA.. T..... 1959
 AAV-6 1961

AAV-1 GCAAGACATGCGAGAGAAATGAATCAGAACATTCAACATTGCTTCACGCACGGGACGAGAG 2036
 AAV-2 ... GACA..... CA.. T.. C..... T..... ACA.. A.. 2019
 AAV-6 ... A..... C.... 2021

AAV-1 ACTGTTAGAGTGCTTCCCCGGCGTGTCAAGATCTCAACCGGTG---GTCAGAAAGAGGA 2093
 AAV-2 T..... T..... C.. TTCT.. GTC.. A.A.G 2076
 AAV-6 A.. T..... 2078

AAV-1 CGTATCGGAAACTCTGTGCCATTCATCATCTGCTGGGGCGGGCTCCGAGATTGCTTGCT 2153
 AAV-2 A..... G.. CTA..... A.CA... AAA.. TG.. A... ---C..... A 2133
 AAV-6 2138

Rep 78 stop

AAV-1 CGGCCTGCGATCTGGTCAACGTGGACCTGGATGACTGTGTTCTGAGCAATAATGACTT 2213
 AAV-2 .T..... T..... TT..... CA.C.T... A..... T.. 2193
 AAV-6 2193

▼ VP1

Rep 68 stop

AAV-1 AAACCAGGTATGGCTGCCGATGGTTATCTTCCAGATTGGCTCGAGGACACCTCTTGAG 2273
 AAV-2 ... T..... 2253
 AAV-6 AC..... G 2258

AAV-1 GGCATTGCGAGTGGTGGGACTTGAAACCTGGAGCCCCGAAGGCCAAGCCAACCAGCAA 2333
 AAV-2 ... A.. AA.AC..... A.GC.C..... CC.A.. ACCA.. A.. GC.. GCAG... GG 2313
 AAV-6 A..... 2318

AAV-1 AAGCAGGACGACGGCCGGGTCTGGTGCTCCTGGCTACAAGTACCTCGGACCCCTAAC 2393
 AAV-2 C.TA..... A.. A..... T..... G..... 2373
 AAV-6 G.. C..... G..... C..... 2378

FIG 1D

AAV-1 GGACTCGACAAGGGGGAGCCCGTCAACGCGGCGACGCAGCGGCCCTCGAGCACGACAAG 2453
 AAV-2A.....G.....A.....A.....C.....A.....A 2433
 AAV-6T..... 2438

AAV-1 GCCTACGACCAGCAGCTCAAAGCGGGTGACAATCCGTACCTGCGGTATAACCACGCCGAC 2513
 AAV-2G.....G.CAGC..A.....C.....CAA..C..... 2493
 AAV-6A.AGCG..T.....T.....GCG..T..... 2498

AAV-1 GCCGAGTTTCAGGAGCGTCTGCAAGAAGATAACGTCTTTGGGGCAACCTCGGGCGAGCA 2573
 AAV-2 ..G.....C..TA.....A.....A.....G..... 2553
 AAV-6 ..C.....T..GC.....A.....T.T.....T..... 2558

AAV-1 GTCTTCAGGCCAAGAAGCGGGTTCTCGAACCTCTCGGTCTGGTTGAGGAAGGCGCTAAG 2633
 AAV-2G..A..A.....T.....G..C.....CCT..T..... 2613
 AAV-6A.....A.....T.T.....T..... 2618

VP2
 AAV-1 ACGGCTCCTGGAAAGAAACGTCCGGTAGAGCAGTCGCCACAAGAGCCAGACTCCTCCTCG 2693
 AAV-2G.....A..GA.G.....C..T..TGTG..... 2673
 AAV-6T.....G..AC.T.....G..G..ACAA..... 2678

AAV-1 GGCATCGGCAAGACAGGCCAGCAGCCGCTAAAAAGAGACTCAATTGGTCAGACTGGC 2753
 AAV-2 ..A.C..A..G.G.....T..A.G..A..T.G.....A 2733
 AAV-6T..... 2738

AAV-1 GACTCAGAGTCAGTCCCCGATCCACAACCTCTCGGAGAACCTCCAGCAACCCCGCTGCT 2813
 AAV-2 ..G....C....A..T..C..C..G.....C.G..A.....G.....T..G. 2793
 AAV-6 ...T....G....C..C..C..A..A.....G.A..T.....A.....G..... 2798

VP3
 AAV-1 GTGGGACCTACTACAATGGCTTCAGGCGGTGGCGACCAATGGCAGACAATAACGAAGGC 2873
 AAV-2 C.....A..A..G.....A.....A.....G... 2853
 AAV-6 2858

AAV-1 GCCGACGGAGTGGTAATGCCTCAGGAAATTGGCATTGCGATTCCACATGGCTGGCGAC 2933
 AAV-2T..C.....A..... 2913
 AAV-6 2918

AAV-1 AGAGTCATCACCAACCAGCACCCGACCTGGGCCTGCCACCTACAATAACCACCTCTAC 2993
 AAV-2A.....C.....C..... 2973
 AAV-6A..A.....T..C..... 2978

AAV-1 AAGCAAATCTCCAGTGCTCAACGGGGCCAGCAACGACAACCAACTACTCGGCTACAGC 3053
 AAV-2 ..A.....T.....CCAA.....A..TCG.....T.....T..... 3030
 AAV-6 3038

AAV-1 ACCCCCTGGGGTATTTGATTCAACAGATTCCACTGCCACTTTACCGACGTGACTGG 3113
 AAV-2T.....C.....T..C..... 3090
 AAV-6 3098

AAV-1 CAGCGACTCATCAACAACAATTGGGGATTCCGGCCAAAGAGACTCAACTCAAACCTTC 3173
 AAV-2 ..AA.....C.....A.....G.....T 3150
 AAV-6 3158

AAV-1 AACATCCAAGTCAAGGAGGTACCGACGAATGATGGCGTCACAACCACCGTAAACCTT 3233
 AAV-2T.....A.....CA.....C..TACG..G..G..T..C..... 3210
 AAV-6G..... 3218

FIG 1E

AAV-1	ACCAGCACGGTTCAAGTCTCTCGGACTCGGAGTACCAGCTTCCGTACGTCCCTGGCTCT	3293
AAV-2	.....G..G..TA.T.....C.....G.....	3270
AAV-6	.....T.G.....	3278
AAV-1	GCGCACCAAGGGCTGCCTCCCTCCGTTCCGGCGGACGTGTTCATGATTCCGCAATACGGC	3353
AAV-2	.....T..A..A.....G.....A..A.....C.....G.G..A..G..T..A	3330
AAV-6	.....G.....	3338
AAV-1	TACCTGACGCTCAACAATGGCAGCCAAGCCGTGGGACGTTCATCCTTTACTGCCTGGAA	3413
AAV-2	.....C..C..G.....C..G..T..G..A..A.....C..T..A.....G	3390
AAV-6	.....A.....G.....	3398
AAV-1	TATTCCTTCTCAGATGCTGAGAACGGCAACAACTTACCTCAGCTACACCTTGAG	3473
AAV-2	..C..T.....C.T..C..A.....T.....T.....C..	3450
AAV-6	.....A..G.....T.....C..	3458
AAV-1	GAAGTGCCTTCCACAGCAGCTACGCGCACAGCCAGAGCCTGGACCGGCTGATGAATCCT	3533
AAV-2	..C..T.....T.....T.....T.....T..C.....	3510
AAV-6	..C.....	3498
AAV-1	CTCATCGACCAATACCTGTATTACCTGAACAGAACTCAAATCAGTCCGAAAGTGCCAA	3593
AAV-2	.....G.....T..G.....AA..C..C..CAAGT...CCA..ACG	3570
AAV-6	.....G.....G.....	3578
AAV-1	AACAAGGACTTGCTGTTAGCCGTGGGTCTCCAGCTGGCATGTCAGCCAAAAAC	3653
AAV-2	C..GTCAAGGC..T..A.....TCT..AG..CCGGAG..GAG..A..TCGG..AC..T..T..GG..	3630
AAV-6	.....G.....	3638
AAV-1	TGGCTACCTGGACCCTGTTATCGGCAGCGCGTTCTAAAACAAAAACAGACAAC	3713
AAV-2	.....T.....C..C.....A..A..CA..G..TCTG..G..T.....	3690
AAV-6	.....C.....	3698
AAV-1	AACAGCAATTACCTGGACTGGTGTCTAAAATATAACCTCAATGGCGTGAATCCATC	3773
AAV-2	.....TG..A..ACT..G.....A..A..C..G..CC.....CA..A..C..TC..G	3750
AAV-6	.....C.....T.....T..A	3758
AAV-1	ATCAACCTGGCACTGCTATGGCCTCACACAAAGACGACGAAGACAAGTTCTTCCATG	3833
AAV-2	G..G..T..G..GC..C..C.....AAGC.....G.....T.....A.....T.....TCA..	3810
AAV-6	.....A.....	3818
AAV-1	AGCGGTGTATGATTGGAAAAGAGAGCGCCGGAGCTTCAAACACTGCATTGGACAAT	3893
AAV-2	.....G..TC..C..C.....G..GC..AG..T..A..AGAAAA..TGTGAACA..T..A..G	3870
AAV-6	.....G.....	3878
AAV-1	GTCATGATTACAGACGAAGAGGAAATTAAAGCCACTAACCTGTGGCCACCGAAAGATT	3953
AAV-2	.....CGG..A..A..C..T..C.....T..G..GCAG..A..	3930
AAV-6	.....C.....C.....	3938
AAV-1	GGGACCGTGGCAGTCAATTCCAGAGCAGCACAGACCCCTGCGACCGGAGATGTGCAT	4013
AAV-2	..TT..T..AT..TAC..CC.....AG..A..G..C..AG..A..T..C..CA..C	3990
AAV-6	.....T.....C.....	3998
AAV-1	GCTATGGGAGCATTACCTGGCATGGTGTGGCAAGATAGAGACGTGTACCTGCAGGGTCCC	4073
AAV-2	A..ACAA..C..TTC..T..A.....C.....G..C.....T.....T.....G..	4050
AAV-6	T.....C.....A.....C.....A.....T	4058

FIG 1F

AAV-1 ATTTGGGCCAAATTCTCACACAGATGGACACTTCACCCGTCTCCTCTTATGGCGGC 4133
 AAV-2 ..C.....A.....G.....A.....G.....C.....T.....C.....C.....T..A 4110
 AAV-6G.....G.....G.....C.....C.....C.....C..... 4118

AAV-1 TTTGGACTCAAGAACCCGCCTCCTCAGATCCTCATCAAAACACGCCTGTTCTGCGAAT 4193
 AAV-2 ..C.....T..AC....T.....A.....T.....G.....C..G..A..... 4170
 AAV-6T...C..... 4178

AAV-1 CCTCCGGCGGAGTTTCAGCTACAAAGTTGCTTCATTCATCACCCAAACTCCACAGGA 4253
 AAV-2 ..T..A.CACC..CAGT..GG.....C.....A..G.....G... 4230
 AAV-6A.....G.....G.....G.....G..T..... 4238

AAV-1 CA-AGTGAGTGTGGAAATTGAATGGGAGCTGCAGAAAGAAAACAGCAAGCGCTGGAATCC 4312
 AAV-2 ..CG..C..C.....G..C..G.....G.....A.....A..... 4290
 AAV-6 ..-.....C.....G.....G.....A.....A..... 4297

AAV-1 CGAAGTGCAGTACACATCCAATTATGCCAA-CGTTGATTTACTGTGGACA 4371
 AAV-2A.T.....T.....C..CAAC..G....TT..T...G..C.....C.....T. 4350
 AAV-6T.....T..C.....-.....C.....C..... 4356

AAV-1 ACAATGGACTTATACTGAGCCTGCCCTATTGGCACCCGTTACCTTACCCGTCCCCTGT 4431
 AAV-2 CT.....CG.G...T.A.....A.A.....G..T...AAT.... 4410
 AAV-6C..... 4416

VP1-3 stop PolyA signal
 AAV-1 AATTACGTGTTAATCAATAAACCGGTTGATTGTTCAAGTTGAACCTTGGTCTCCTGTCC 4491
 AAV-2G.T.....T..A.....T.....A.....G.....A....G 4470
 AAV-6GT.....A.....G.....A.....G.....A....G 4476

AAV-1 TTCTTATCTTATC-GGTTACCATGGTTAT-AGCTTACACATTA--ACTGCTTGGTTGCGC 4547
 AAV-2 ..TC.T.....TA...T.....C..CGTAGA..AGT..GC..TGG..G.G..AA..CATTA 4530
 AAV-6 ..A.....T...C.....A.CA.C-C.G.....A..... 4533

AAV-1 TTCGCGATAAAAGACTTACGTACGGGttacccctagtgtatggagttgccactccctc 4607
 AAV-2 ACTA.A..gg.a-----g..... 4570
 AAV-6at-----g..... 4572

AAV-1 tctgcgcgtcgctcgctcggtggggccggcagagcagagctctgcgtctgcggacctt 4667
 AAV-2 ..c.....ac..a.....gc..c..a..g..gc...a..gc..c..gg... 4630
 AAV-6 ..a.....g..... 4632

AAV-1 tggtccgcaggccccaccgagcgagcgagcgccgagagagggagtggcaa 4718
 AAV-2 ..cc..g..gc....t..gt.....c... 4681
 AAV-6t..... 4683

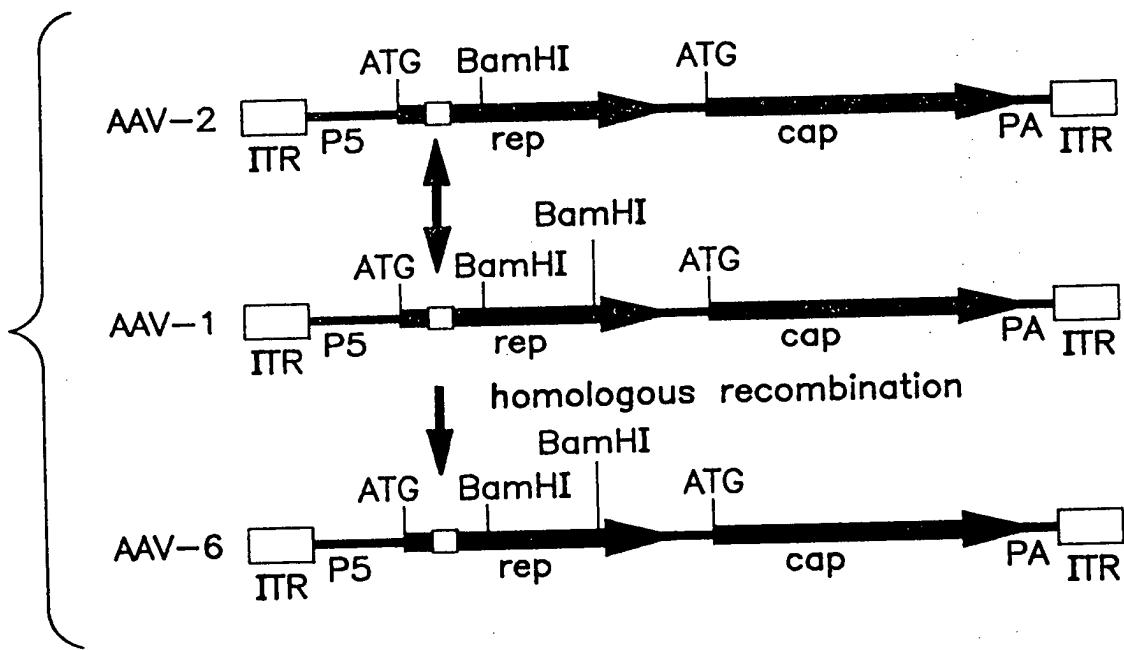


FIG. 3A

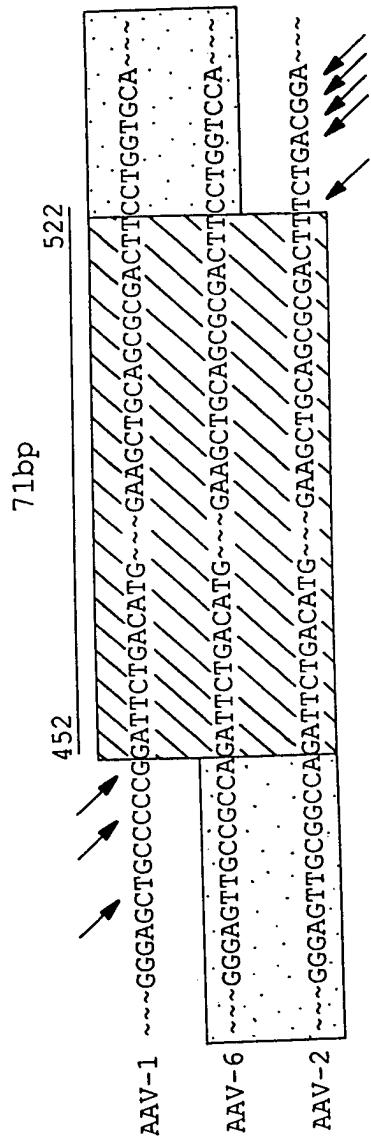


FIG. 3B

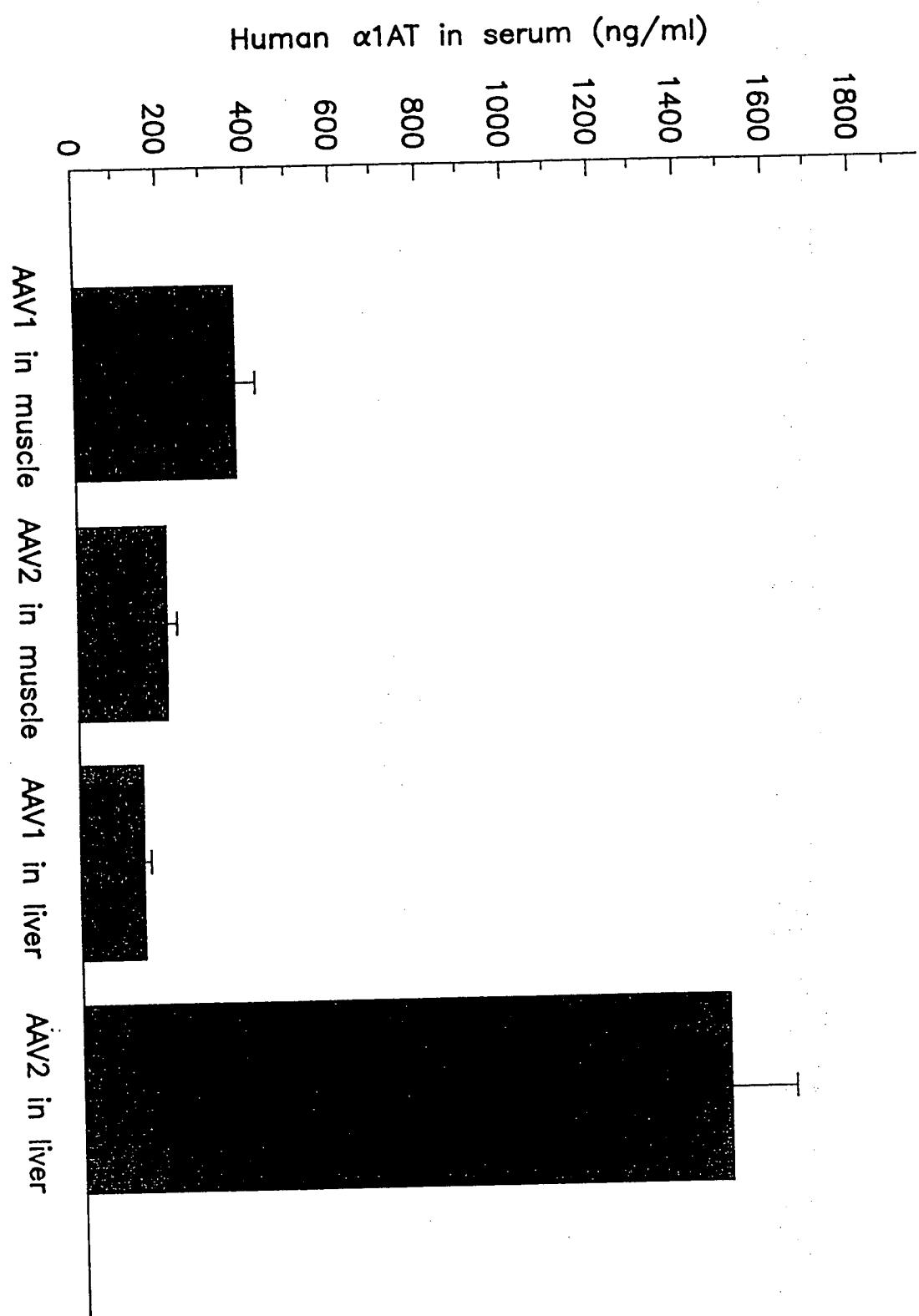


FIG. 4A

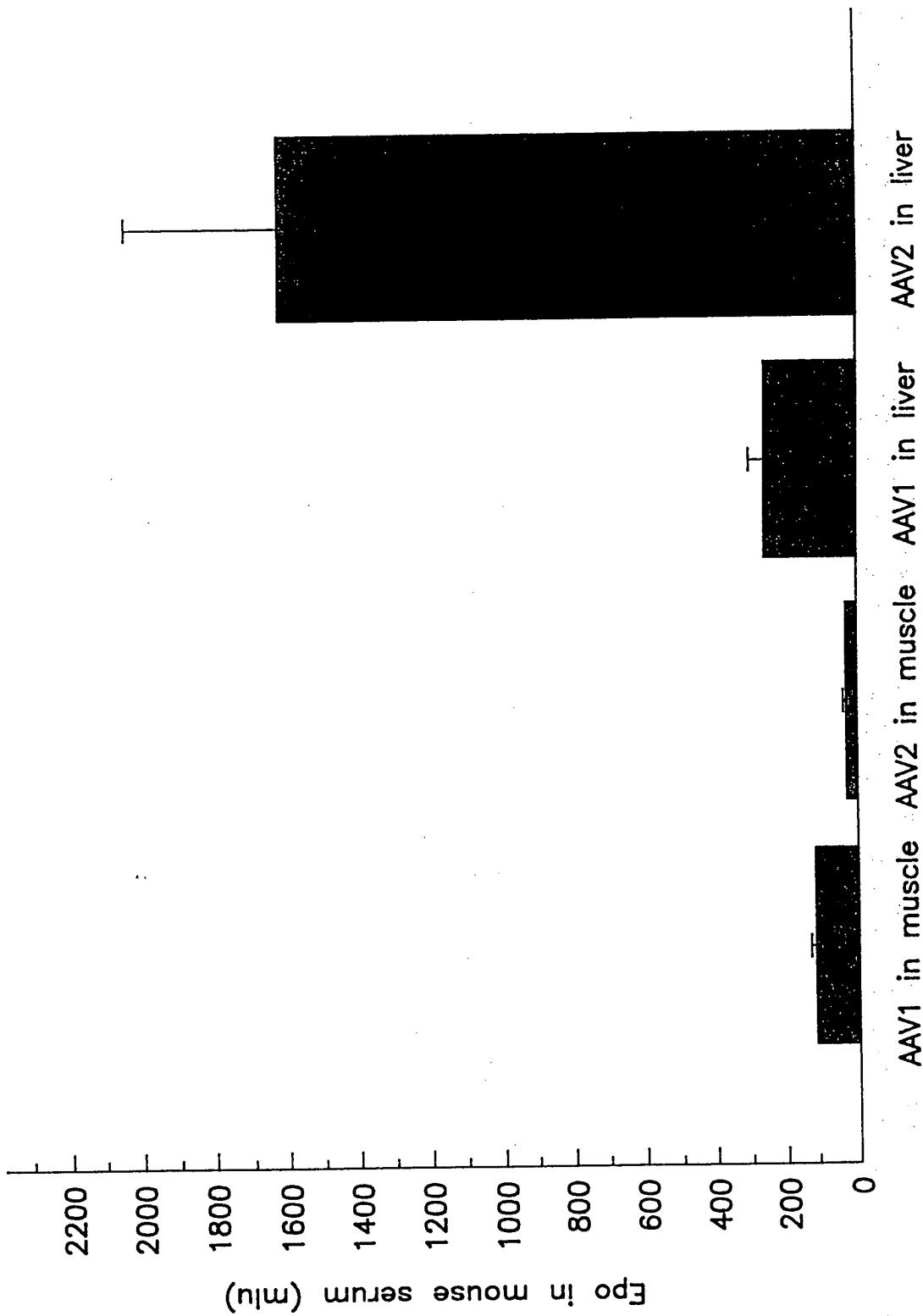


FIG. 4B

FIG. 5A

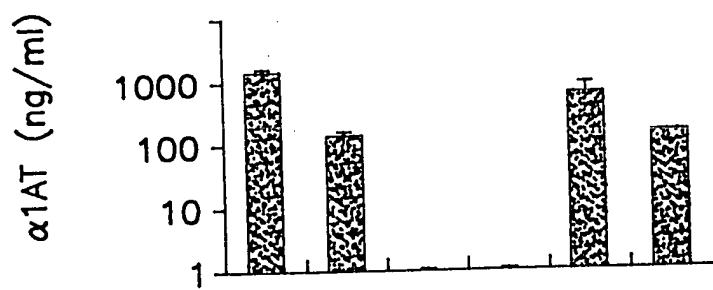


FIG. 5B

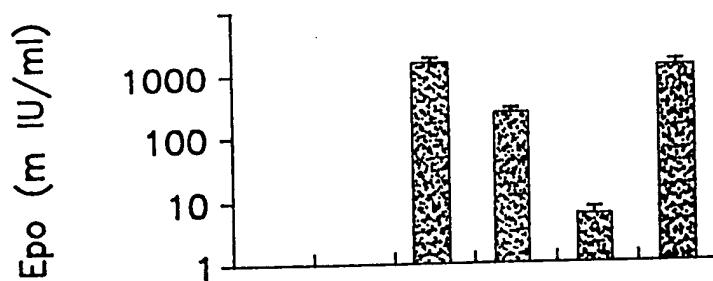


FIG. 5C

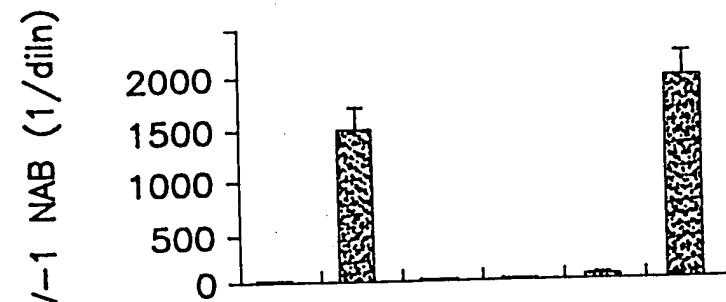
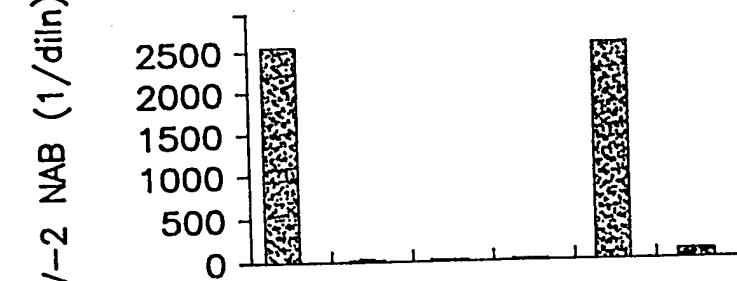


FIG. 5D



Group	1	2	3	4	5	6
Vector1- $\alpha 1AT$	AAV2	AAV1	PBS	PBS	AAV2	AAV1
Vector2-EPO	AAV2	AAV1	AAV2	AAV1	AAV1	AAV2

FIG. 6A

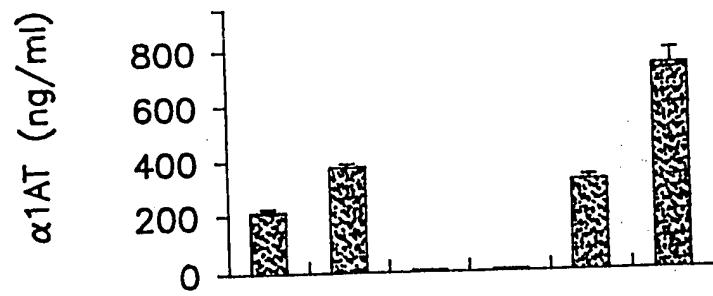


FIG. 6B

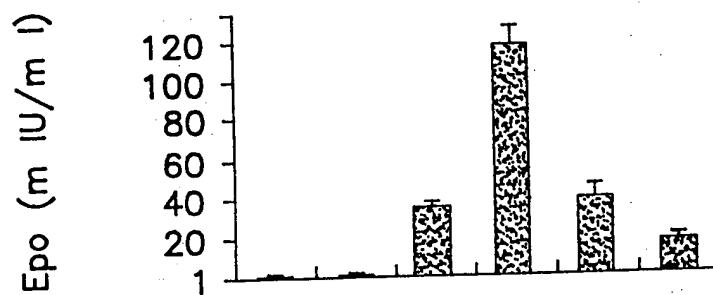


FIG. 6C

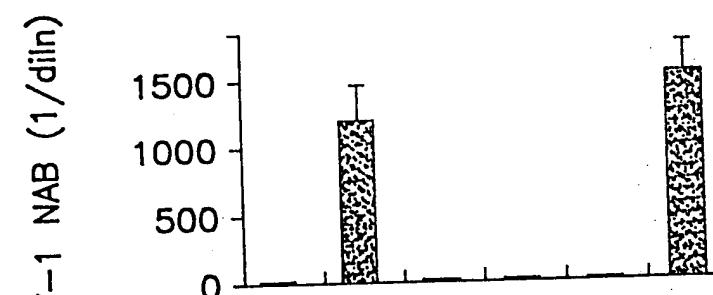
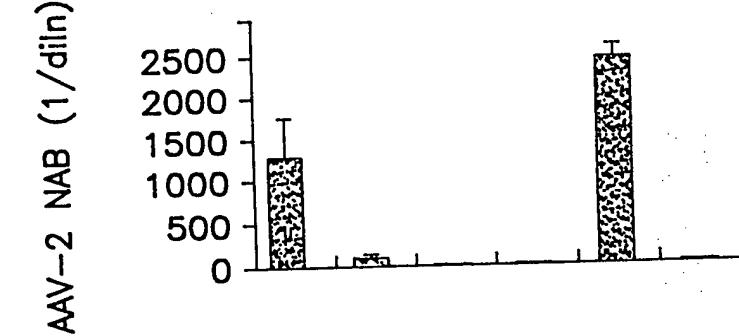


FIG. 6D



Group	1	2	3	4	5	6
Vector1- $\alpha 1AT$	AAV2	AAV1	PBS	PBS	AAV2	AAV1
Vector2-EPO	AAV2	AAV1	AAV2	AAV1	AAV1	AAV2

AAV-1 TR

FIG 2